

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
13 January 2005 (13.01.2005)

PCT

(10) International Publication Number  
**WO 2005/003163 A1**

(51) International Patent Classification<sup>7</sup>: **C07K 14/47**,  
19/00, A61K 38/17, A61P 31/04

(21) International Application Number:  
PCT/SG2004/000194

(22) International Filing Date: 2 July 2004 (02.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2,432,972 4 July 2003 (04.07.2003) CA

(71) Applicant (for all designated States except US): **NATIONAL UNIVERSITY OF SINGAPORE** [SG/SG];  
10 Kent Ridge Crescent, Singapore 119260 (SG).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DING, Jeak, Ling** [MY/SG]; 110 Holland Avenue, Warner Court #06-04, Singapore 278 966 (SG). **HO, Bow** [MY/SG]; 110 Holland Avenue, Warner Court #06-04, Singapore 278966 (SG).

(74) Agent: **DREW & NAPIER LLC**; 20 Raffles Place, #17-00, Ocean Towers, Singapore 048620 (SG).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **SUSHI PEPTIDE MULTIMER**

(57) Abstract: Endotoxin, also known as lipopolysaccharides (LPS), is the major mediator of septic shock due to Gram-negative bacterial infection. Chemically synthesized S3 peptide, derived from Sushi3 domain of Factor C, which is the endotoxin-sensitive serine protease of the limulus coagulation cascade, binds and neutralizes LPS activity. Fluorescent tagged-S3 is shown to detect LPS-containing bacteria. For large-scale production of S3 and to mimic other pathogen-recognizing molecules, tandem multimers of the S3 gene were constructed and expressed in *E. coli*. Tetramer of S3 for example is shown to display an enhanced inhibitory effect on LPS-induced activities. An affinity matrix based on tetramer of S3 is also shown to be particularly efficient at removing LPS.



**WO 2005/003163 A1**